

CLAIMS

1. An uninterrupted power supply unit comprising:

a straightforward switch connected in series with a system which connects a power source to a load, and supplying or interrupting an electric power served from the power source to the load;

a first single phase inverter connected in parallel with said system;

a second single phase inverter connected in series with said system; and

a battery connected to direct current side terminals of said the first and second single phase inverters.

2. The uninterrupted power supply unit according to claim 1, wherein said second single phase inverter is connected between the first single phase inverter and the load.

3. The uninterrupted power supply unit according to claim 1, wherein an either one of the first and second single phase inverters is connected to the battery through a DC-DC converter.

4. The uninterrupted power supply unit according to claim 1, wherein the first and second single phase inverters are connected so that their output voltages which are different each other are superimposed and supplied to the load.

5. The uninterrupted power supply unit according to claim 1, wherein the first and second single phase inverters form

a pseudo-sinusoidal voltage wave comprising a voltage waveform having a plurality of output levels to output it to the load, by combining their output voltages after decreasing in the system voltage and opening of the straightforward switch.

6. The uninterrupted power supply unit according to claim 1, wherein when a system voltage fluctuate in the normal operating condition, the second single phase inverter superimposes voltage for compensating the fluctuation on the system voltage by controlling a pulse width or voltage value of the output voltage.

7. The uninterrupted power supply unit according to claim 3, wherein an either one of the first and second single phase inverters is connected to the battery through a DC-DC converter to give and receive energy through the DC-DC converter between both inverters.

8. The uninterrupted power supply unit according to claim 1, wherein the first single phase inverter is comprised of a plurality of inverters connected in series each other.

9. The uninterrupted power supply unit according to claim 8, wherein at least two of direct current power sources provided to said plurality of single phase inverters constituting said first single phase inverter have a voltage relationship of 1:2, or 1:3.

10. The uninterrupted power supply unit according to claim 8 or claim 9, wherein said first single phase inverter is

controlled so that the current which compensates reactive power in the normal condition is flown in or out from the system.

11. The uninterrupted power supply unit according to claim 8, wherein said second single phase inverter is PWM-controlled so that the direct current voltage of the second single phase inverter is 0.5 or more of the direct current voltage of the single phase inverter generating the least voltage out of a plurality of the inverters constituting the first single phase inverter.

12. The uninterrupted power supply unit according to claim 7, wherein the direct current voltage of said second single phase inverter is changed by said DC-DC converter according to an amount of decreased or increased system voltage.

13. The uninterrupted power supply unit according to claim 1, wherein said second single phase inverter is connected between said first single phase inverter and the power source.

14. The uninterrupted power supply unit according to claim 13, wherein said first single phase inverter forms a pseudo-sinusoidal voltage wave comprising a waveform having a plurality of output levels to output it to the load after decreasing in the system voltage and opening of the straightforward switch.

15. The uninterrupted power supply unit according to claim 1, wherein said straightforward switch is constituted by a mechanical switch or semiconductor switch.